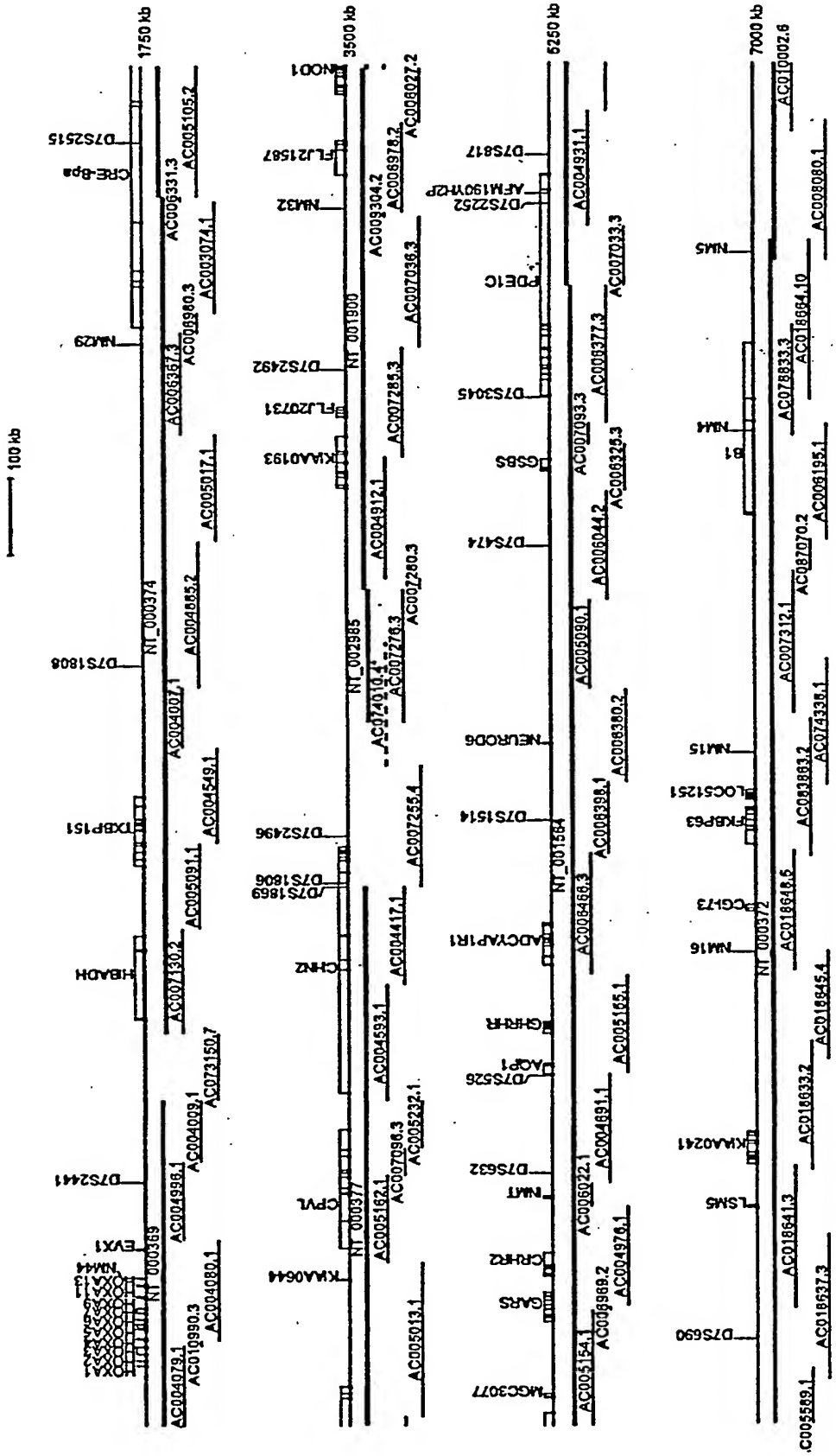
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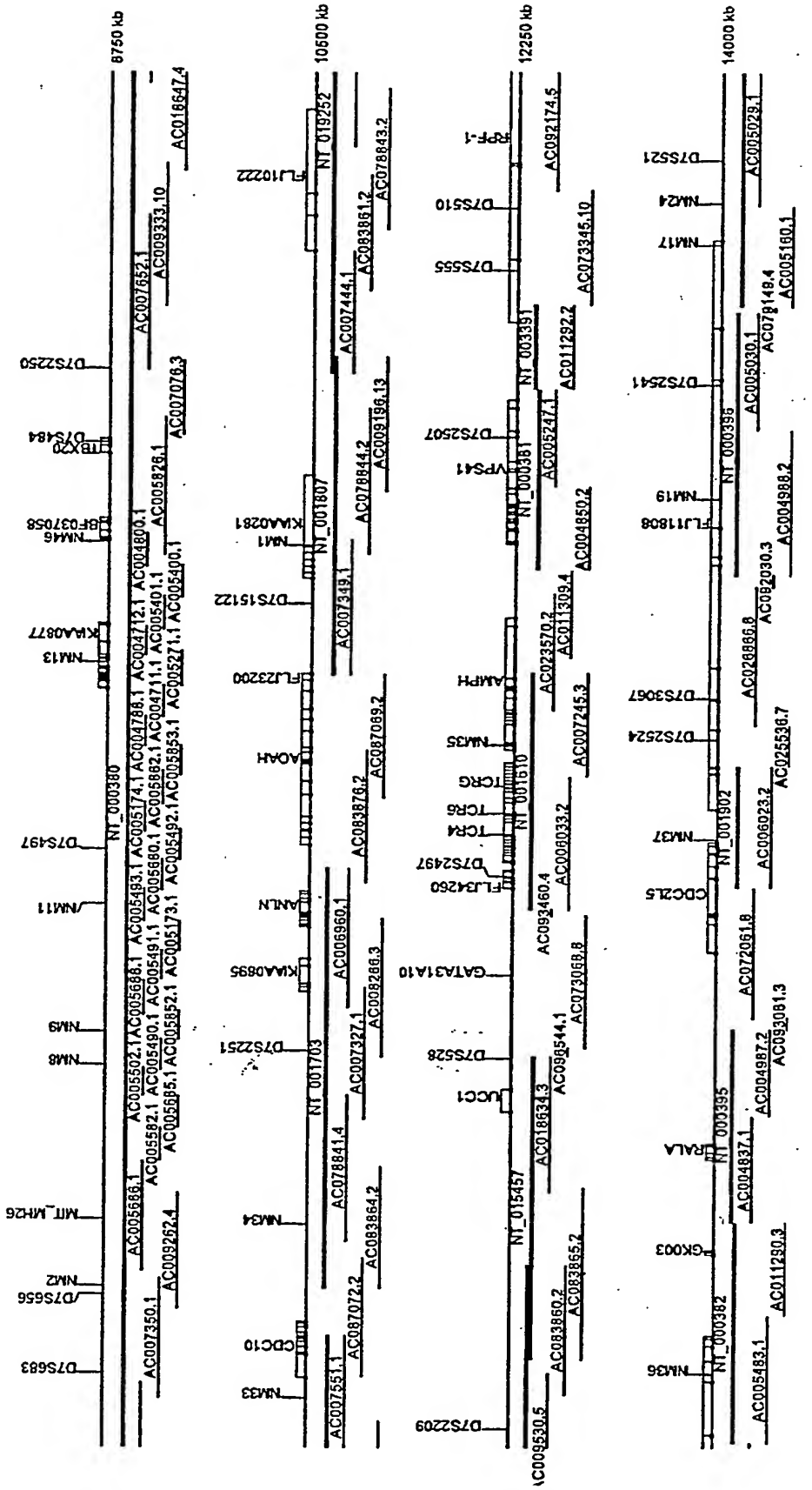
Fig. 1



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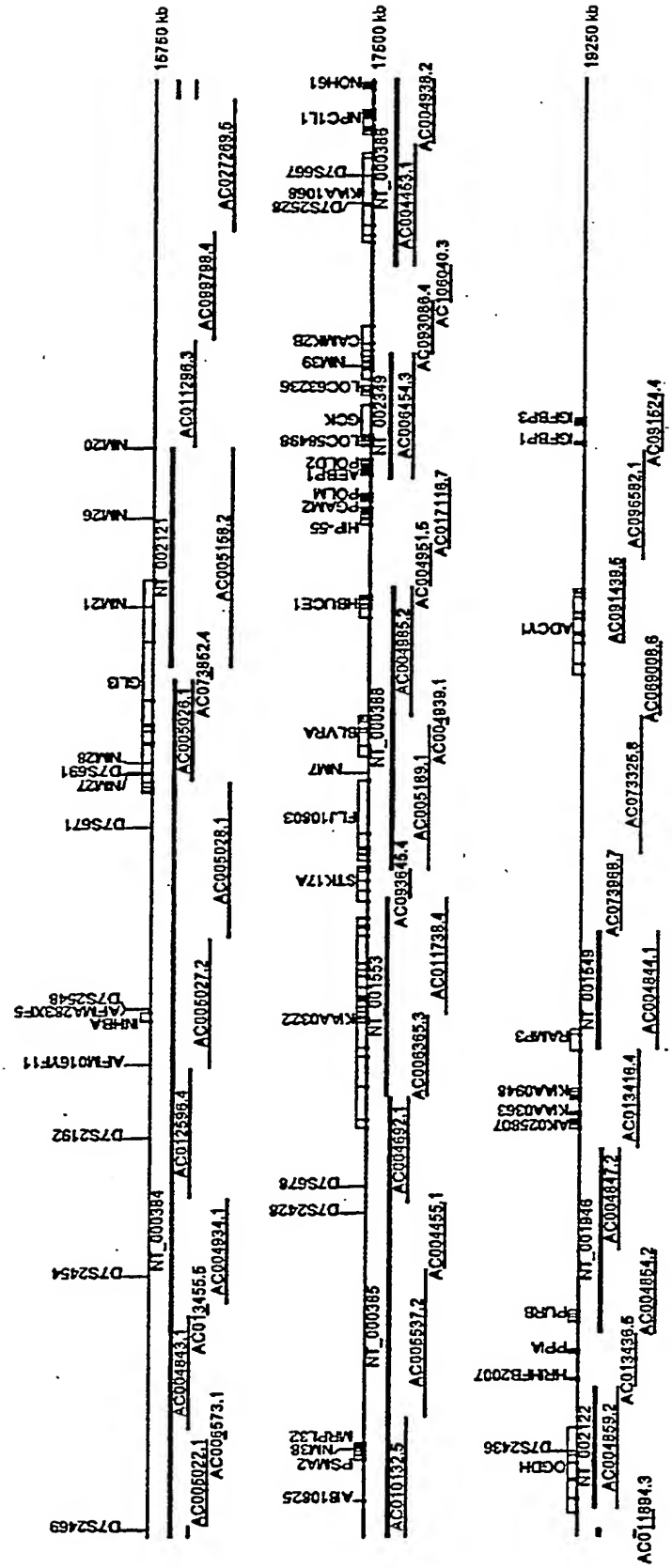


Fig. 1 (continued)

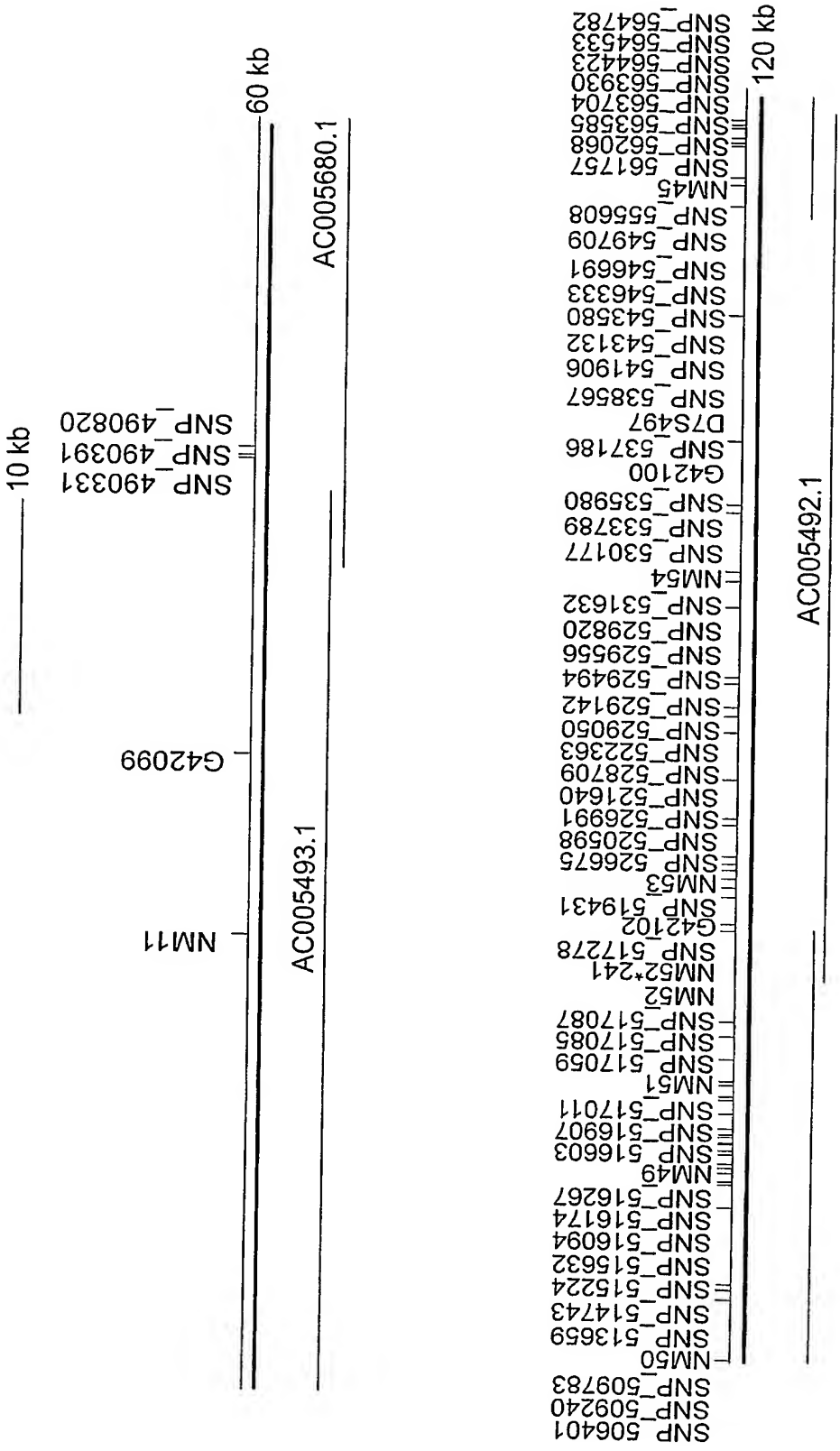
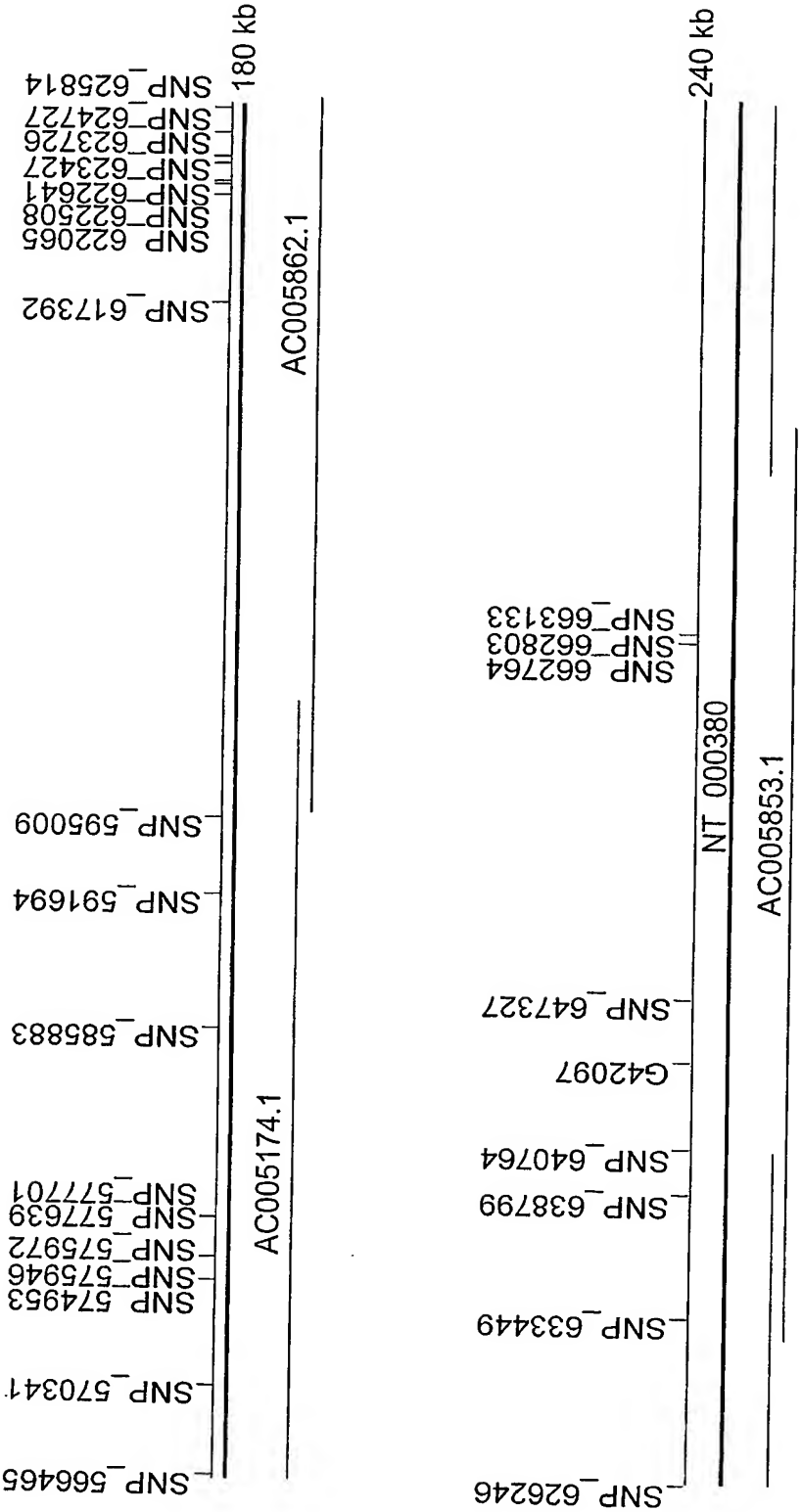


Fig. 2



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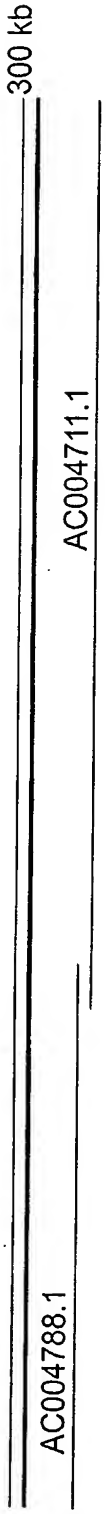

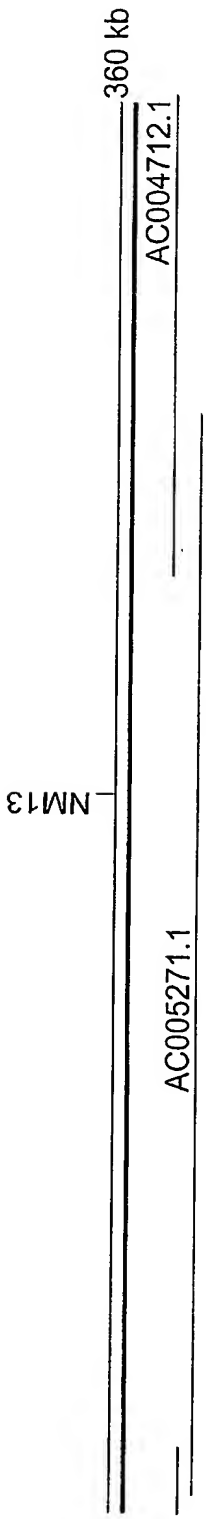

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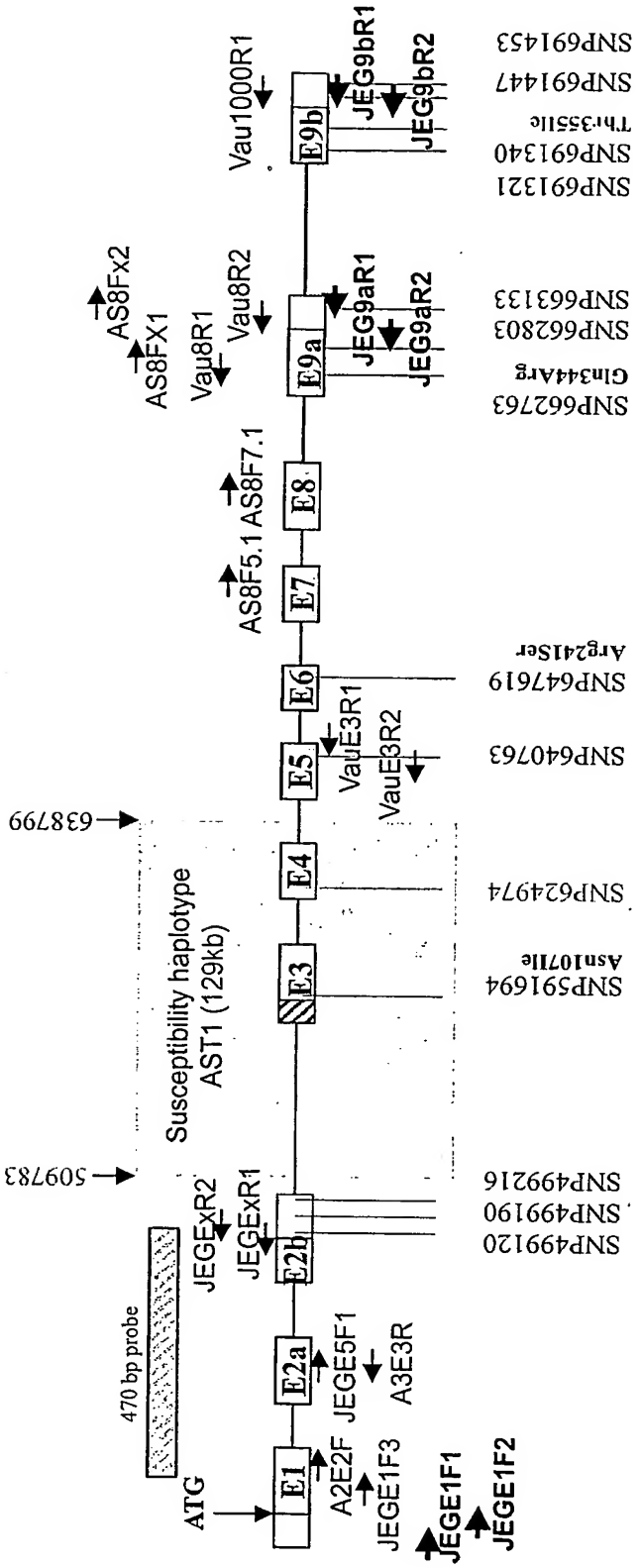
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Fig. 3

Figure 4A

A SEQ ID NOs: 2 and 3 (GB AY310326)

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Figure 4B1

B long SEQ ID NOS: 4 and 5 (GB AY310327)

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Figure 4B2

B short SEQ ID NOS: 6 and 7 (GB AY310328)

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Figure 4C

C SEQ ID NOS: 8 and 9 (GB AY310329)

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Figure 4D

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Figure 4E

E SEQ ID NOS: 12 and 13 (GB AY310331)

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atgccagccaacttcacagagggcagcttcgattccagtgggaccgggcagacgctggat
 M  P  A  N  F  T  E  G  S  F  D  S  S  G  T  G  Q  T  L  D
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 S  S  P  V  A  C  T  E  T  V  T  F  T  E  V  V  E  G  K  E
tggggttccttctactactcctttaag|actgagcaattgataactctgtgggtcctcttt
 W  G  S  F  Y  Y  S  F  K  T  E  Q  L  I  T  L  W  V  L  F
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 V  F  T  I  V  G  N  S  V  V  L  F  S  T  W  R  R  K  K  K
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 S  R  M  T  F  F  V  T  Q  L  A  I  T  D  S  F  T  G  L  V
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 N  I  L  T  D  I  N  W  R  F  T  G  D  F  T  A  P  D  L  V
tgccgagtggtccgctatttgcag|aaaagcaagccagggtcctcattgtgatcgcctgga
 C  R  V  V  R  Y  L  Q  K  S  K  P  G  S  S  L  *
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Figure 4F

F SEQ ID NOS: 14 and 15 (GB AY310332)

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 S  S  P  V  A  C  T  E  T  V  T  F  T  E  V  V  E  G  K  E
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 W  G  S  F  Y  Y  S  F  K  T  E  Q  L  I  T  L  W  V  L  F
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 V  F  T  I  V  G  N  S  V  V  L  F  S  T  W  R  R  K  K  K
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 S  R  M  T  F  F  V  T  Q  L  A  I  T  E  K  Q  A  R  V  L
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 K  P  E  F  I  *
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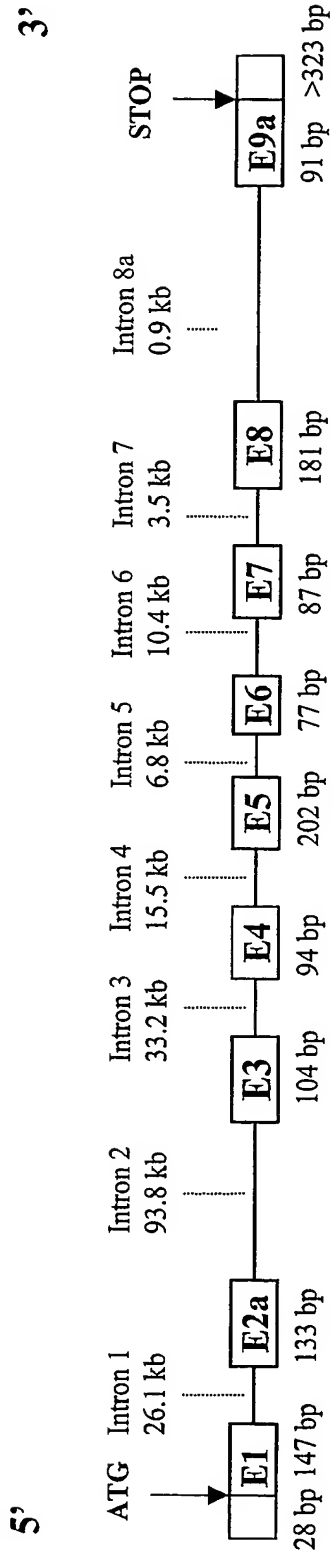

Figure 5A

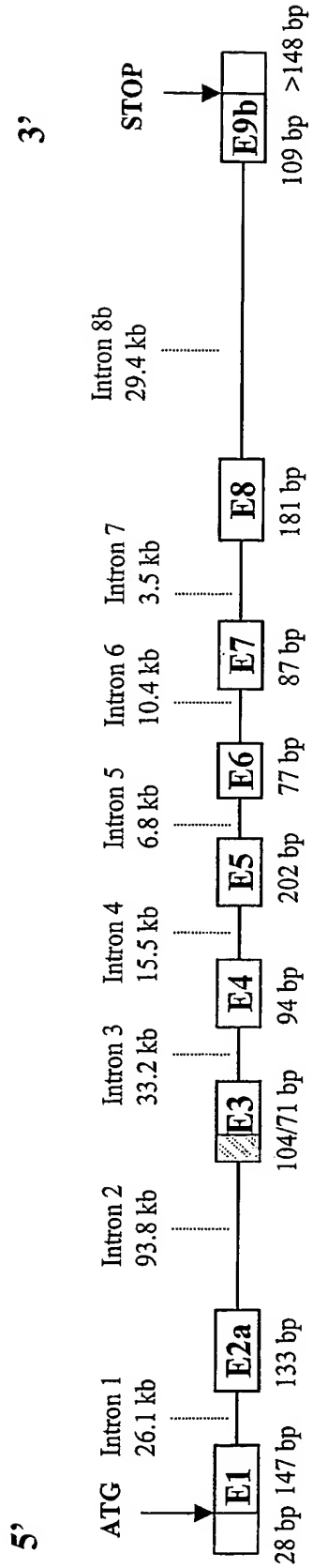

Figure 5B

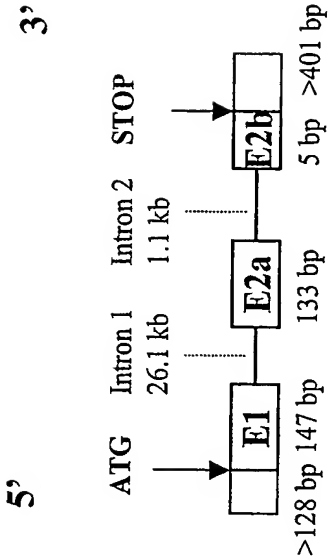

Figure 5C

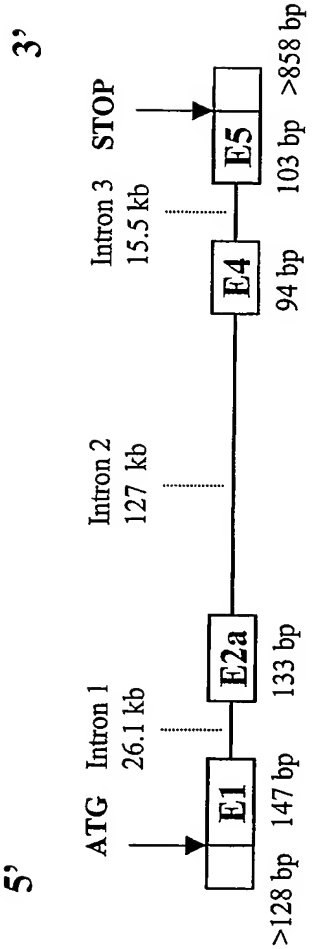

Figure 5D

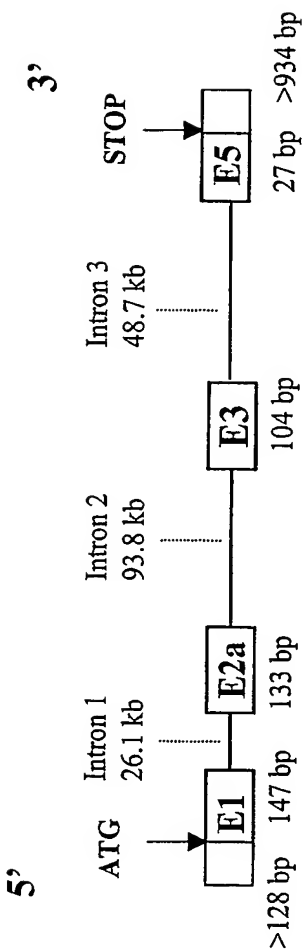

Figure 5E

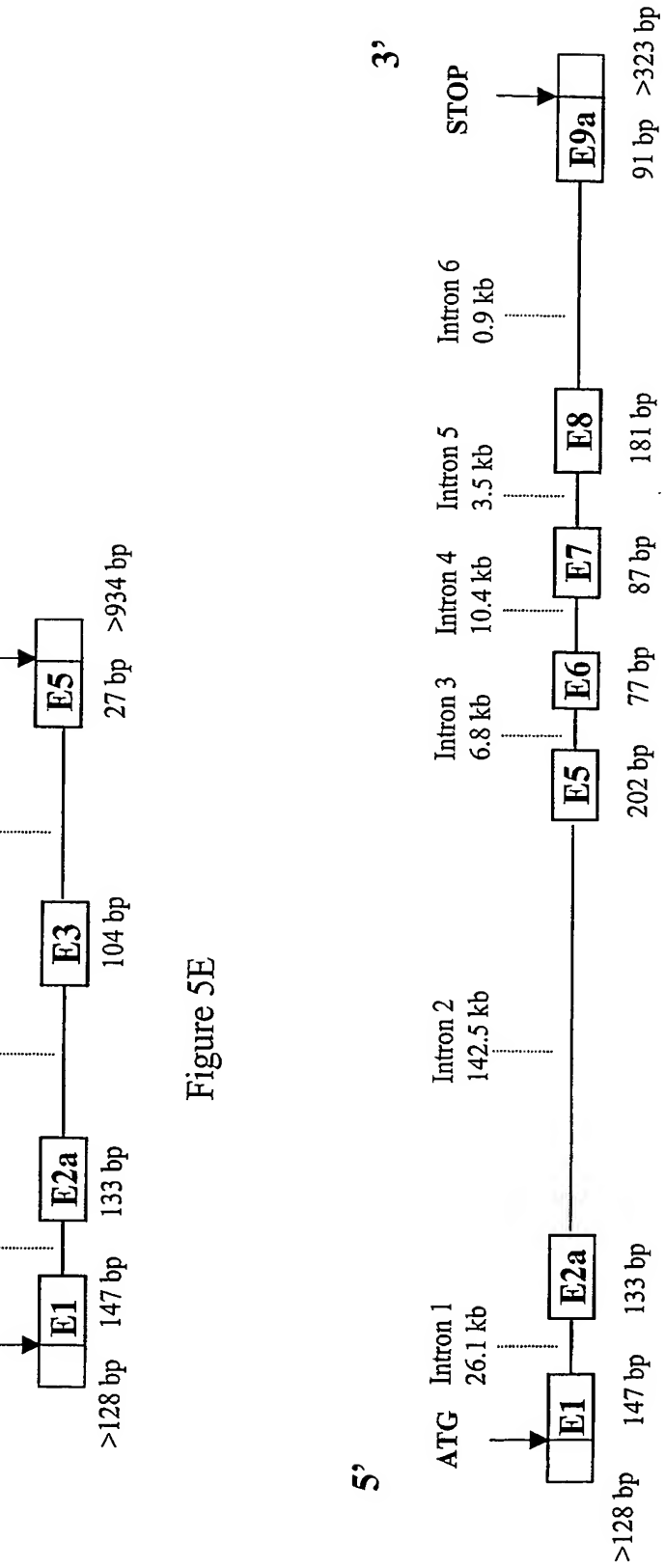

Figure 5F

MPANFTEGSFDSSGTGQTLDSSPVACTETVTFTEVVEGKEWGSFYYSFKT

TM1 CYTOLOOP1 TM2
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EXOLOOP1 TM3
NILTDINWRFTGDFTAPDLVCRVVRYLQVVLLYASTYVLVSLSIDRYHAI

CYTOLOOP2 TM4 EXOLOOP2
VYPMKFLQGEKQARVLIVIAWSLSFLFSIPTLIIFGKRTLSNGEVQCWAL

TM5 CYTOLOOP3
WPDDSYWTPYMTIVAFLVYFIPLTIISIMYGIVIRTIWIKSKTYETVISN

TM6
CSDGKLCSSYNRGLISKAKIKAIKYSIIIILAFICCWSPYFLFDILDNFN

EXOLOOP3 TM7
LLPDTQERFYASVIIQNLPALNSAINPLIYCVFSSSISFPCREQRSQDSR

MTFRERTERHEMQILSKPEFI*

Figure 6A

B_{long}

MPANFTEGSFDSSGTGQTLDSSPVACTETVTFTEVVEGKEWGSFYYSFKT

TM1 CYTOLOOP1 TM2
EQLITLWVLFVFTIVGNSVVLFSTWRRKKKSRMTFFVTQLAITDSFTGLV

EXOLOOP1 TM3
NILTDINWRFTGDFTAPDLVCRVVRYLQVVLLYASTYVLVSLSIDRYHAI

CYTOLOOP2 TM4 EXOLOOP2
VYPMKFLQGEKQARVLIVIAWSLSFLFSIPTLIIFGKRTLSNGEVQCWAL

TM5 CYTOLOOP3
WPDDSYWTPYMTIVAFLVYFIPLTIISIMYGIVIRTIWIKSKTYETVISN

TM6
CSDGKLCSSYNRGLISKAKIKAIKYSIIIILAFICCWSPYFLFDILDNFN

EXOLOOP3 TM7
LLPDTQERFYASVIIQNLPALNSAINPLIYCVFSSSISFPCRVIRLRQLQ

EAALMLCPQRENWKGTWPGVPSWALPR*

B_{short} (33 bp deletion in exon 3)

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QLAITDINWRFTGDFTAPDLVCRVVRYLQVVLLYASTYVLVSLSI

DRYHAIVYPMKFLQGEKQARVLIVIAWSLSFLFSIPTLIIFGKRTLS

NGEVQCWALWPDDSYWTPYMTIVAFLVYFIPLTIISIMYGIVIRTI

WIKSKTYETVISNCSDGKLCSSYNRGLISKAKIKAIKYSIIIILAFIC

CWSPYFLFDILDNFNLLPDTQERFYASVIIQNLPALNSAINPLIYC

VFSSSISFPCRVIRLRQLQEAALMLCPQRENWKGTWPGVP

SWALPR*

Figure 6B

C

MPANFTEGSFDSSGTGQTLDSSPVACTETVTFTEVVEGKEWGSFYYSFKT

EQLITLWVLFVFTIVGNSVVLFSTWRRKKKSRMTFFVTQLAITV*

D

MPANFTEGSFDSSGTGQTLDSSPVACTETVTFTEVVEGKEWGSFYYSFKT

EQLITLWVLFVFTIVGNSVVLFSTWRRKKKSRMTFFVTQLAITGCAALRL

YLRPGVPQHRQIPCHRLPHEVPSRRKASQGPHCDRLEPVFSVLHSHPDHI

WEEDTVQR*

Figure 6C and 6D

E

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RVVRYLQKSKPGSSL*

F

MPANFTEGSFDSSGTGQTLDSSPVACTETVTFTEVVEGKEWGSFYYSFKTEQLITLWVLF
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KRTLSNGEVQCWALWPDDSYWTPYMTIVAFLVYFIPLTIISIMYGIVIRTIWIKSKTYET
VISNCSDGKLCSSYNRGLISKAKIKAIKYSIIIILAFICCWSPYFLFDILDNFNLLPDTQ
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KPEFI*

Figure 6E and 6F

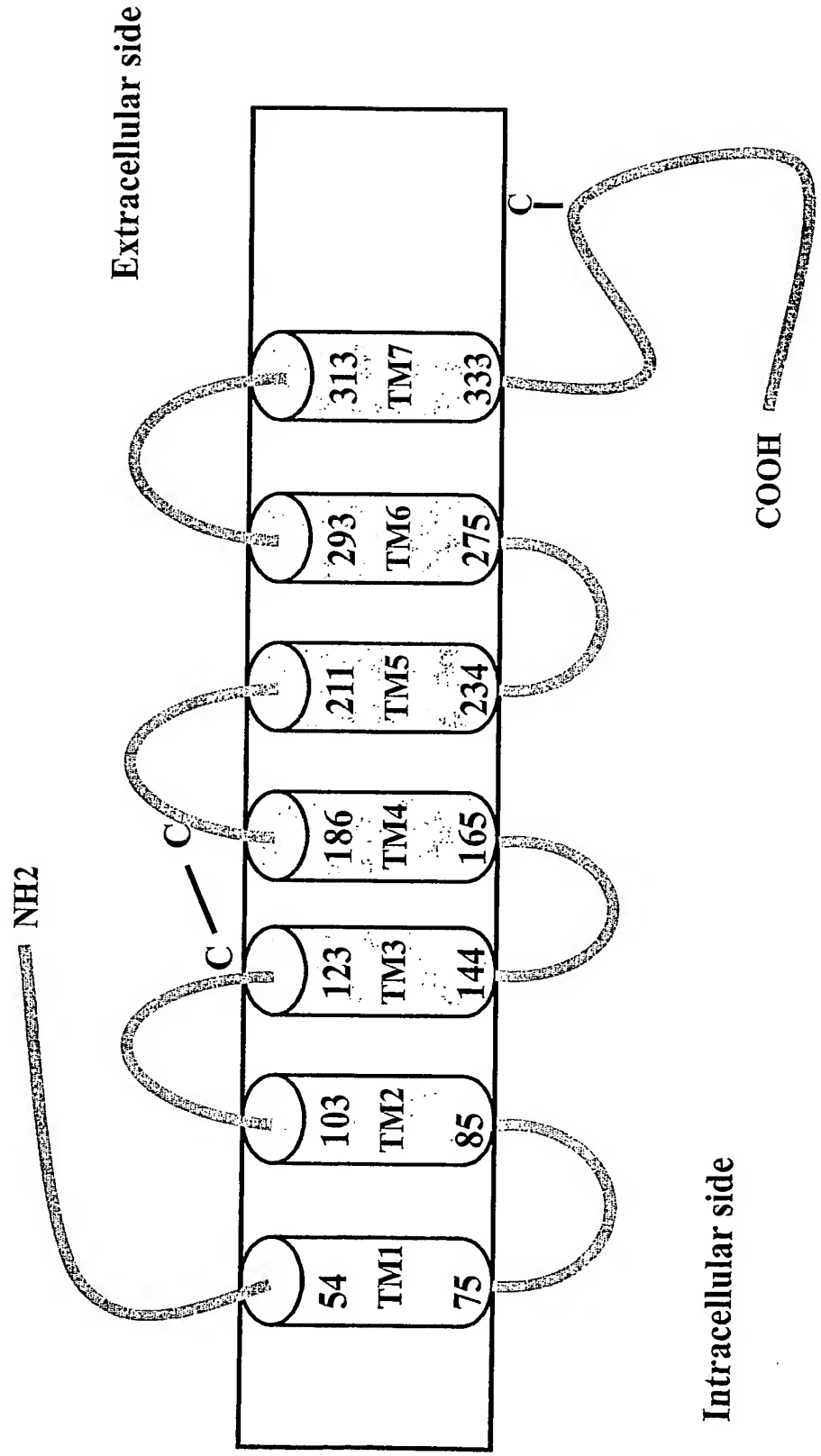


Fig. 7

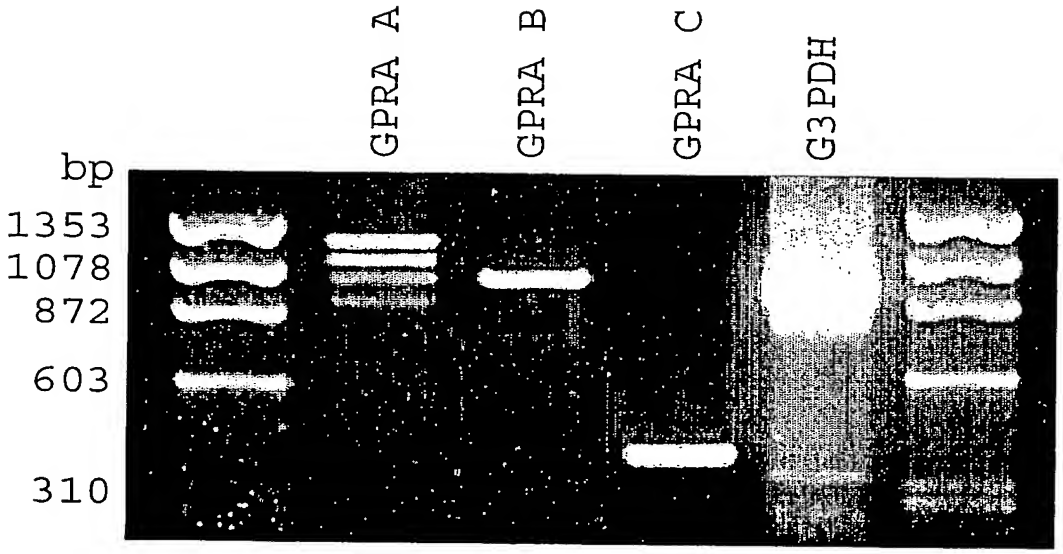


Figure 8

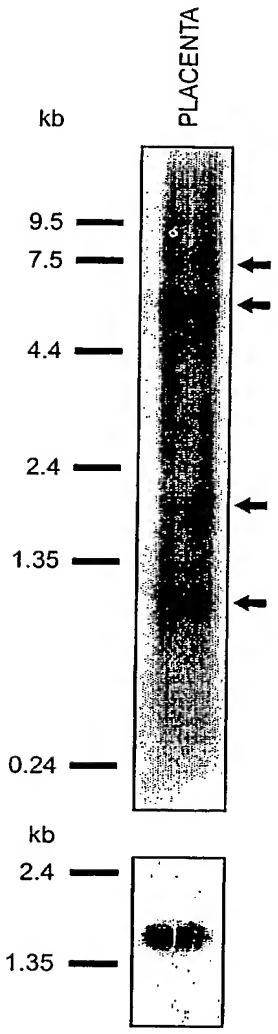


Figure 9

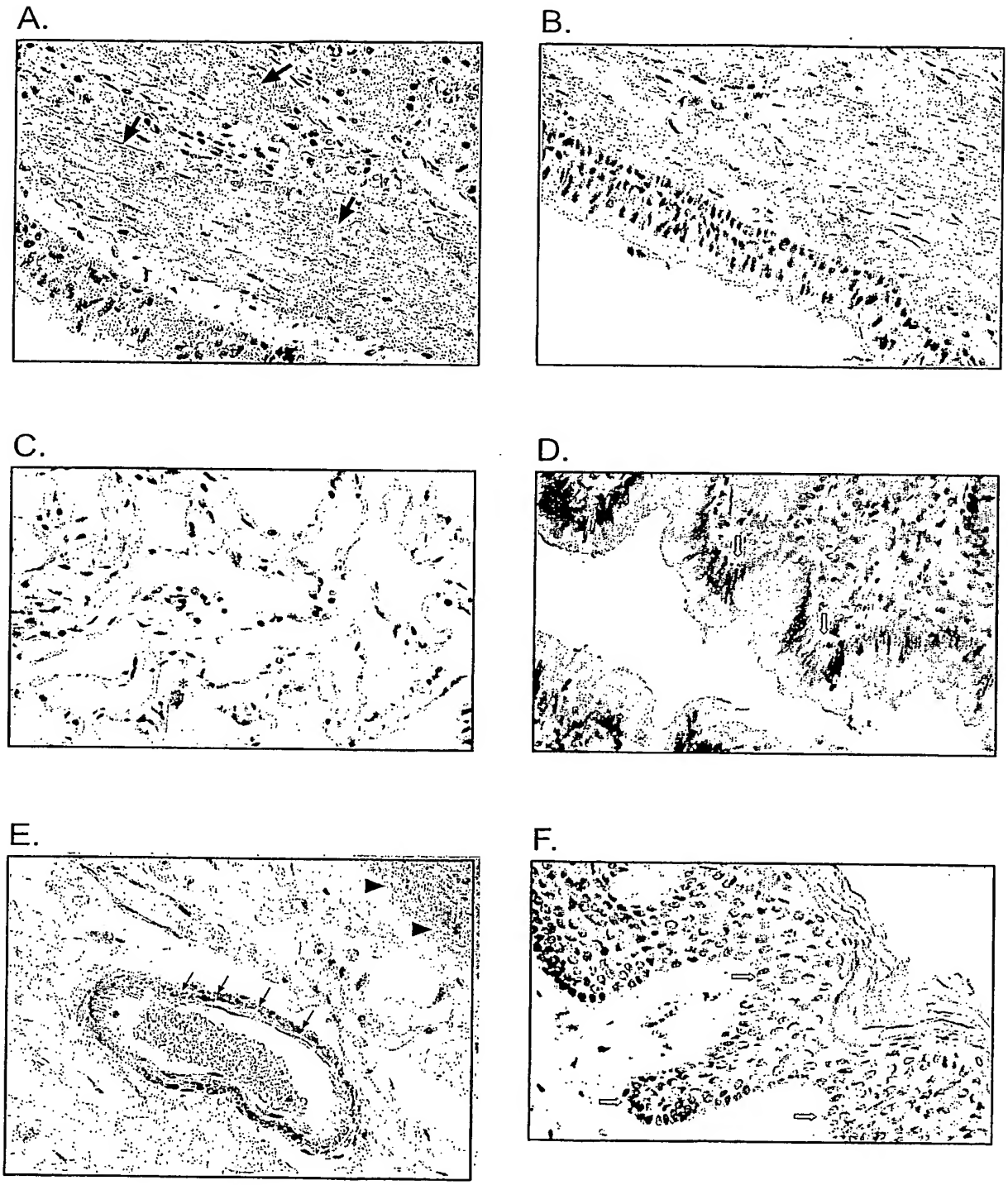


Fig. 10A, Fig. 10B, Fig. 10C, Fig. 10D, Fig. 10E, Fig. 10F

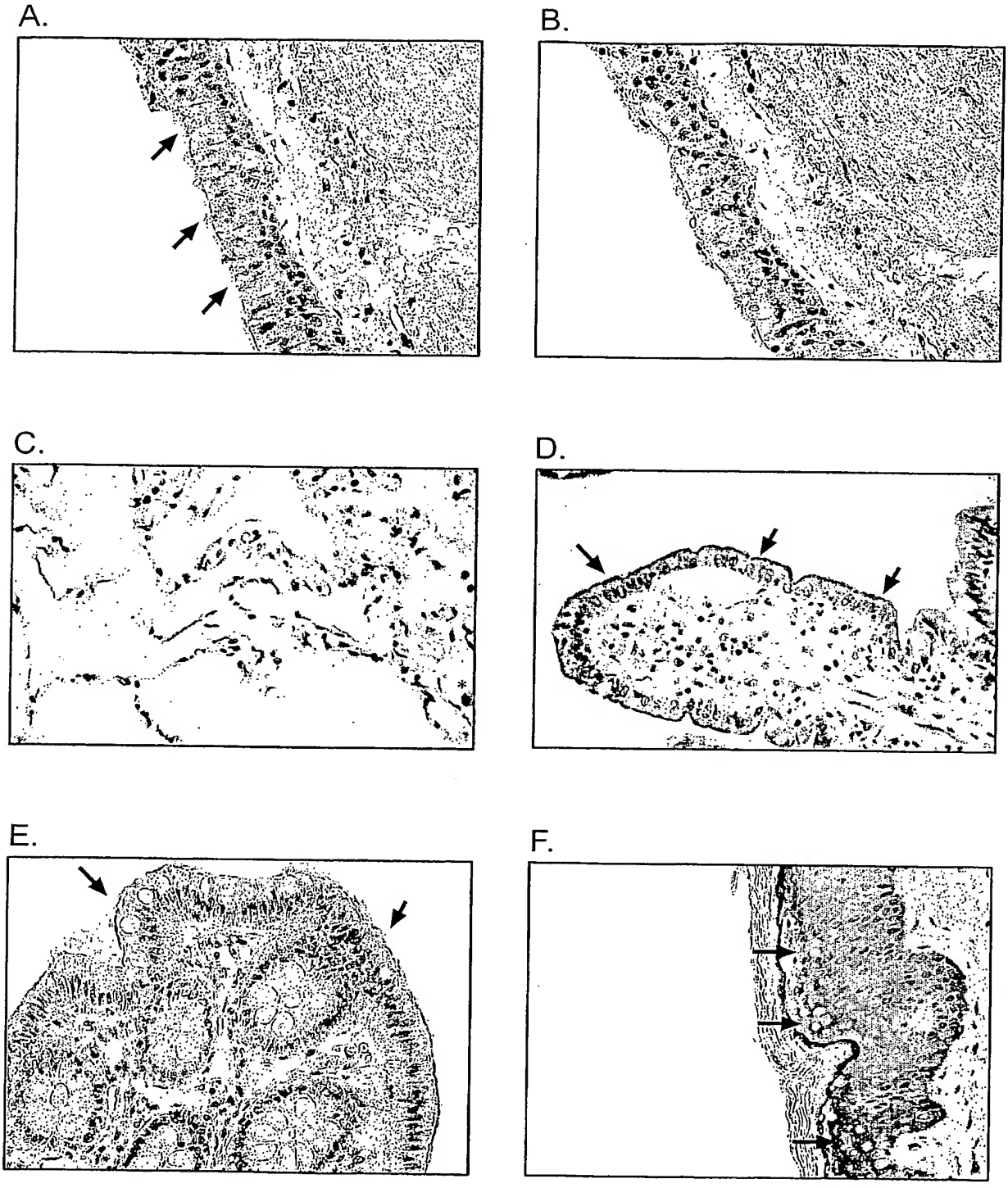


Fig. 11A, Fig. 11B, Fig. 11C, Fig. 11D, Fig. 11E, Fig. 11F

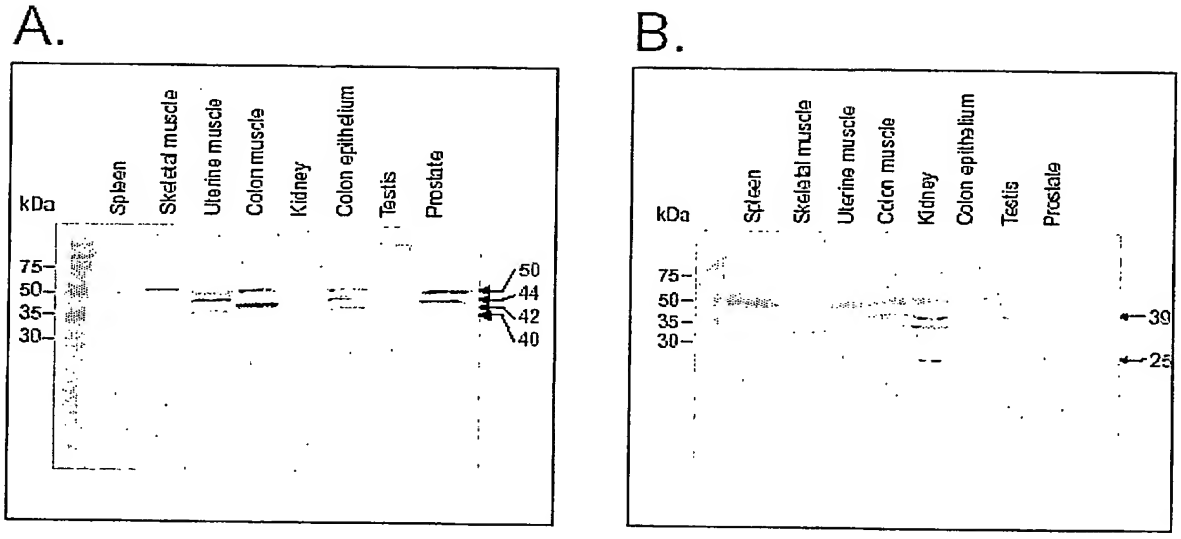
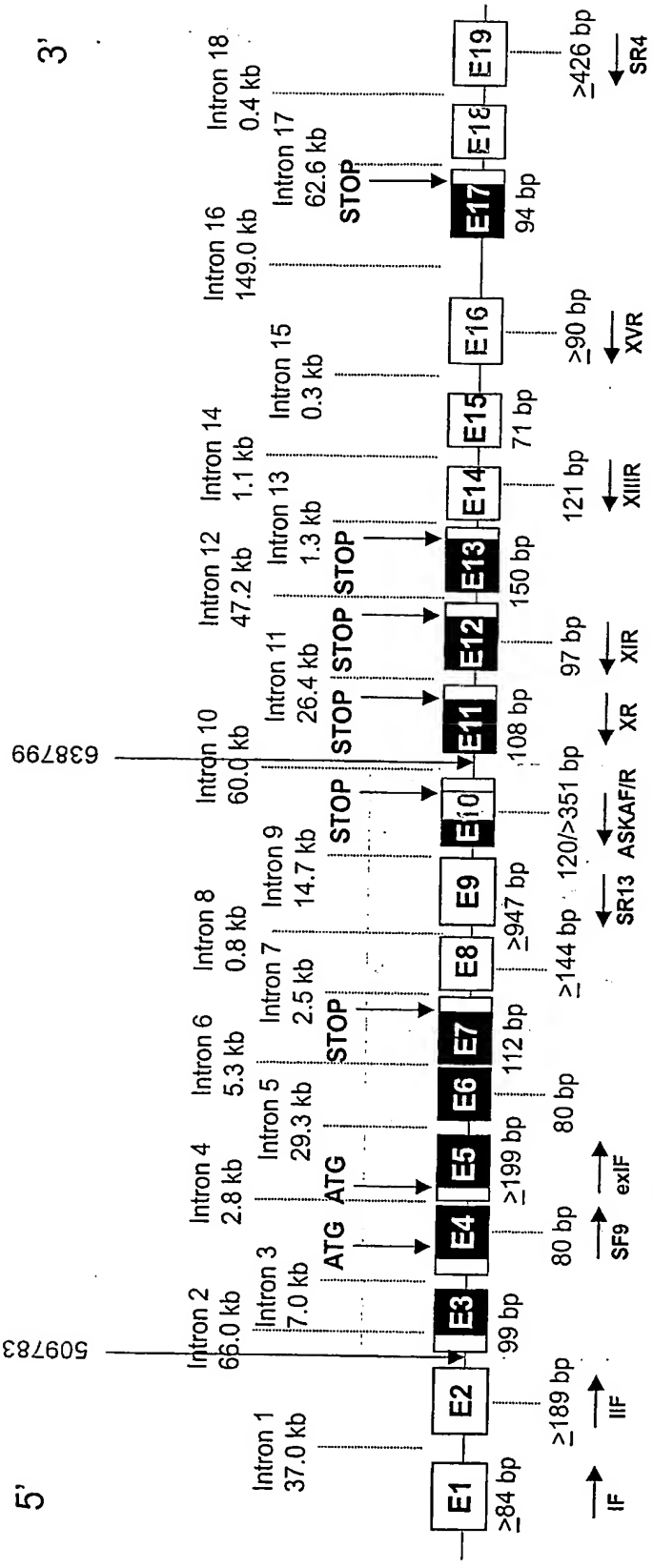


Fig. 12A and 12B


5'
3'
E1
E2
E3
E4
E5
E6
E7
E8
E9
E10
E11
E12
E13
E14
E15
E16
E17
E18
E19
Intron 1 37.0 kb
Intron 2 66.0 kb
Intron 3 7.0 kb
Intron 4 2.8 kb
Intron 5 29.3 kb
Intron 6 5.3 kb
Intron 7 2.5 kb
Intron 8 0.8 kb
Intron 9 14.7 kb
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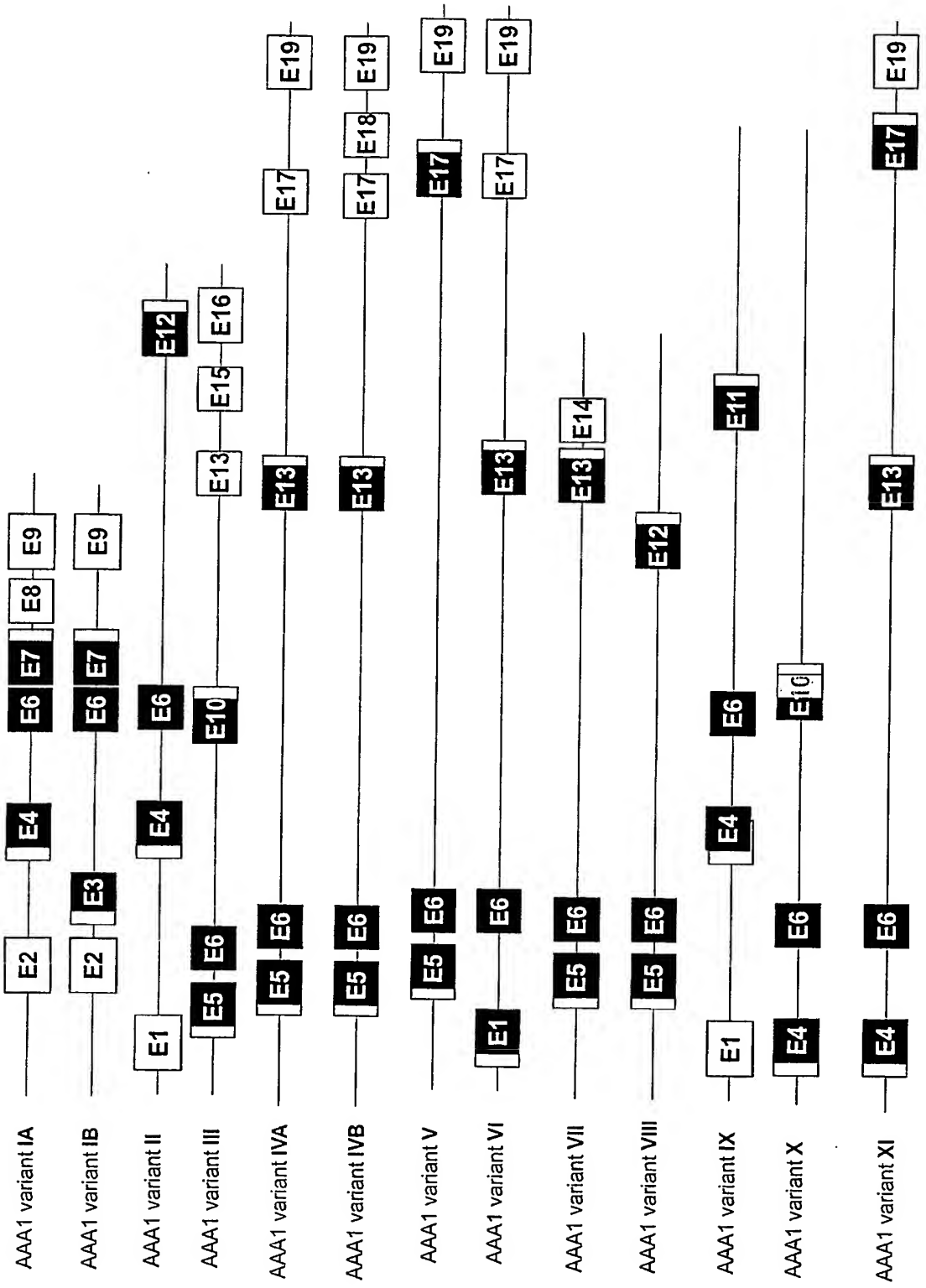
Intron 13 1.3 kb
Intron 14 1.1 kb
Intron 15 0.3 kb
Intron 16 149.0 kb
Intron 17 62.6 kb
Intron 18 0.4 kb
509783
638799
ATG
ATG
STOP
STOP
STOP
STOP
STOP
STOP
≥84 bp
≥189 bp
99 bp
80 bp
≥199 bp
80 bp
112 bp
≥144 bp
≥947 bp
120/>351 bp
108 bp
97 bp
150 bp
121 bp
71 bp
≥90 bp
94 bp
≥426 bp
IF
IIF
SF9
exIF
SR13
ASKAF/R
XR
XIR
XIIIR
XVR
SR4
Susceptibility haplotype
AST1 (129Kb)

Fig. 13


AAA1 variant IA
E2
E4
E6
E7
E8
E9
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E2
E3
E6
E7
E9
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E1
E4
E6
E12
AAA1 variant III
E5
E6
E10
E13
E15
E16
AAA1 variant IVA
E5
E6
E13
E17
E19
AAA1 variant IVB
E5
E6
E13
E17
E18
E19
AAA1 variant V
E5
E6
E17
E19
AAA1 variant VI
E1
E6
E13
E17
E19
AAA1 variant VII
E5
E6
E13
E14
AAA1 variant VIII
E5
E6
E12
AAA1 variant IX
E1
E4
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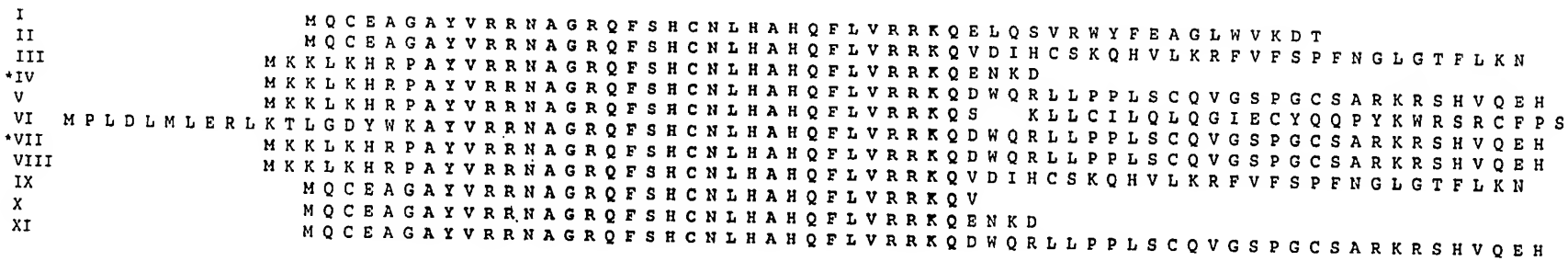
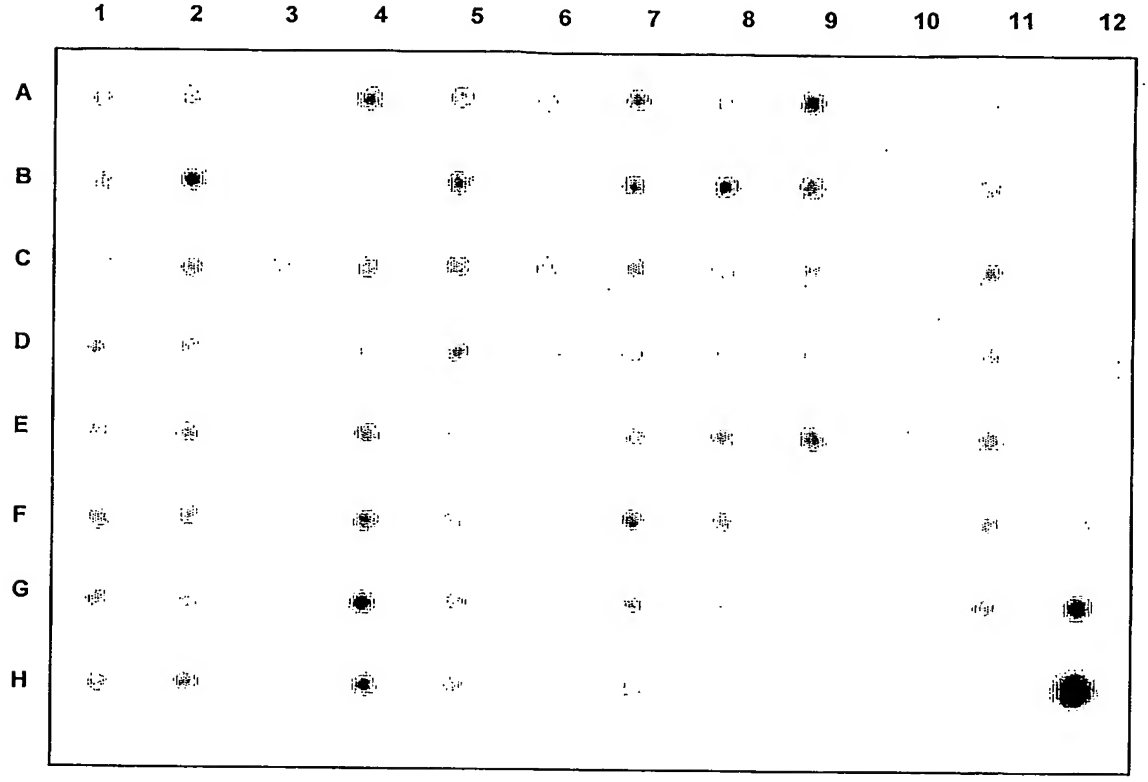
E16
AAA1 variant XI
E4
E6
E13
E17
E19

Fig. 14



*) shared protein coding sequence, different 3´-untranslated regions

Figure 15



	1	2	3	4	5	6	7	8	9	10	11	12
A	whole brain	cerebellum, left		heart	esophagus	colon, transverse	kidney	lung	liver	leukemia, HL-60	fetal brain	yeast total RNA
B	cerebral cortex	cerebellum, right	accumbens nucleus	aorta	stomach	colon, descending	skeletal muscle	placenta	pancreas	HeLa S3	fetal heart	yeast tRNA
C	frontal lobe	corpus callosum	thalamus	atrium, left	duodenum	rectum	spleen	bladder	adrenal gland	leukemia, K-562	fetal kidney	*E. coli* rRNA
D	parietal lobe	amygdala		atrium, right	jejunum		thymus	uterus	thyroid gland	leukemia, MOLT-4	fetal liver	*E. coli* DNA
E	occipital lobe	caudate nucleus	spinal cord	ventricle, left	ileum		peripheral blood leukocyte	prostate	salivary gland	Burkitt's lymphoma, Raji	fetal spleen	Poly r(A)
F	temporal lobe	hippo-campus		ventricle, right	ilocecum		lymph node	testis		Burkitt's lymphoma, Daudi	fetal thymus	human C_0t-1 DNA
G	p. g.* of cerebral cortex	medulla oblongata		inter-ventricular septum	appendix		bone marrow	ovary		colorectal adeno-carcinoma, SW480	fetal lung	human DNA 100 ng
H	pons	putamen		apex of the heart	colon, ascending		trachea			lung carcinoma, A549		human DNA 500 ng

* para-central gyrus

Figure 16

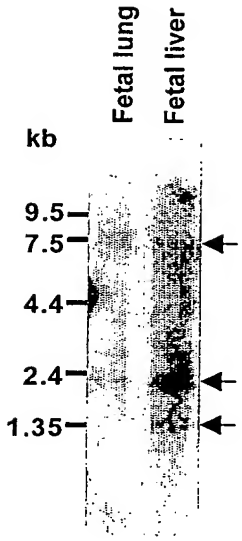


Figure 17

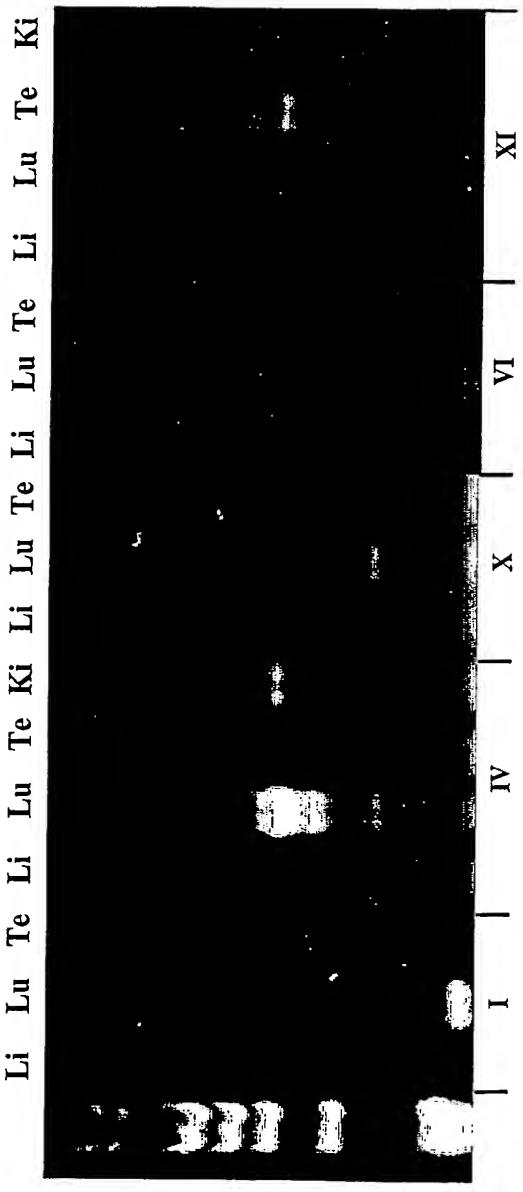


Figure 18

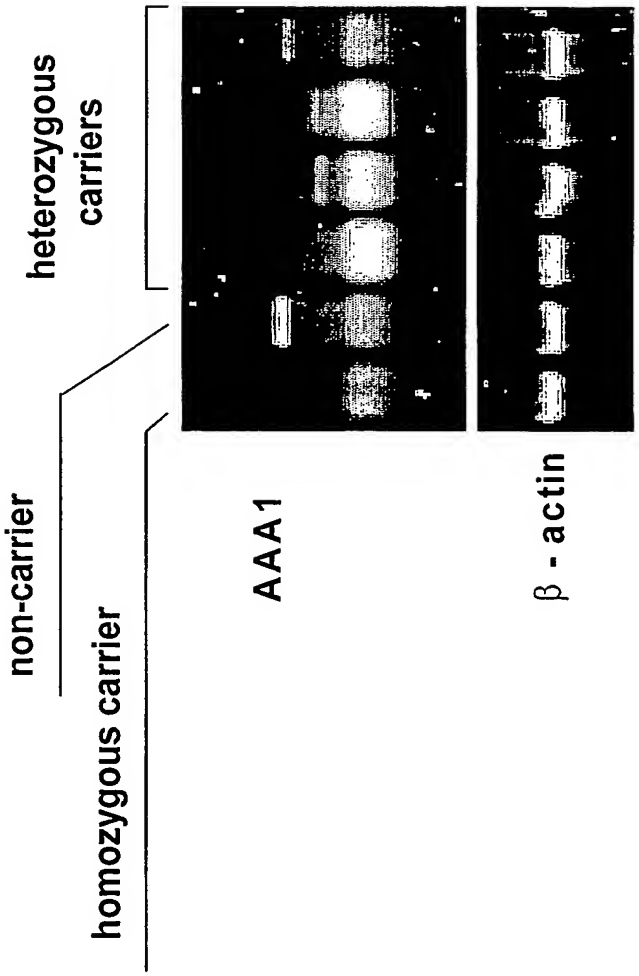


Figure 19

Figure 20

I exons 2, 4, 6, 7, 8, 9 GB AY312364 SEQ ID NOS: 16 and 17

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ccactggatggagttacttctttcttaagtgaggaggctaagatctggagtgacttctcc
ccagatttttgtatacctgactctgtttcagcatccgcttcccaaagaatgcagtgtgaa
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A G A Y V R R N A G R Q F S H C N L H A
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G L W V K D T
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ggtgccagctgtatgaaaaatccatttcttatttcccataatgtttctgaaatgtcttag
cagtgcatagagacagcatgtcatcattttctagggactgtgtgttattgcatttttcct
agggaagatcttttctaggtcacctgctccttcgctaaagctctgaccaatctagcttgc
taacctgtgactccatttttcctaagtcctgagagagaaaaacgctttgcagcaaattatg
ccaggcatccttgtgtctaaatgaaaaaaggaaaaagcctccttccttccctctgttgag
aagtgcacggtccacatatgcatgcacagcatatactgtgagggtatttgcagtcccttg
ggttgctttgataactggccaggttgctgttctatttttccacattctattaatcctcct
acaggcagttattaggtattgagtgctcacacacccctggcatagtcaccacatgccatt
agctccagataaacttccagaaaaaagtccatcccccacttctctcagctgcctgccaac
gctggacaccttctcaccaagccagcaggacagagaaaagcctgggctttaagatcaaac
aaacacagcttcaaattaggactctgtcacttcctgtgtactgggcactttgctgagtat
gtggtttctcatctgtaaaacagagaaagatgattatctcccaatctttctatgttatat
gtttgaattaaataaggtactctccatgaa

Figure 20 (continued)

III exons 5, 6, 10a, 13, 15, 16 GB AY 312367 SEQ ID NOS: 22 and 23

tctaggactcagaaatatagatgttagtaagagcaaacagacataacagataacacatac
aaagtgcctaccacatgctaaccactgctgcaggcactttctatagaagaactaatttaa
tcatcaccataaccctatggggtagatgatatttttacaacctccattttacag**atg**aag
M K
aaactgaagcatagacctgcttatgtgagaagaaacgcagggagacagttcagtcactgc
K L K H R P A Y V R R N A G R Q F S H C
aatcttcatgcccatcagtttcttgtgagaagaaaacaagaaaacaaggac**tga**aatcca
N L H A H Q F L V R R K Q E N K D
cacaggaaggtggcagtgaactccacagacggacctggacgcctcaacactcctggcctt
acctcccttgctgaacgtctcaagtttctctgcgttcaggactggcaacgcctgcttcct
cctctgagctgtcaagtaggaagtccgggctgctctgctagaaagagaagtcatgtgcag
gagcactgaggcatcccaggtgtgacactcttccacctagagcattccgtctctcatcct
ctgccatgtgacgctgggcttctttaacaaattaatcccaagtgcaagacatttatttct
tctgtacctaatgacctgagcaatccttctctgctgaacctggtagtgtcatctttagaa
gtgaagacacaattaacacatggtcatttcttcattatatcgttgttact

IV exons 5, 6, 13, 17, 19 GB AY312368 SEQ ID NOS: 24 and 25

tctaggactcagaaatatagatgttagtaagagcaaacagacataacagataacacatac
aaagtgcctaccacatgctaaccactgctgcaggcactttctatagaagaactaatttaa
tcatcaccataaccctatggggtagatgatatttttacaacctccattttacag**atg**aag
M K
aaactgaagcatagacctgcttatgtgagaagaaacgcagggagacagttcagtcactgc
K L K H R P A Y V R R N A G R Q F S H C
aatcttcatgcccatcagtttcttgtgagaagaaaacaagactggcaacgcctgcttcct
N L H A H Q F L V R R K Q D W Q R L L P
cctctgagctgtcaagtaggaagtccgggctgctctgctagaaagagaagtcatgtgcag
P L S C Q V G S P G C S A R K R S H V Q
gagcac**tga**ggcatcccaggtgtgacactcttccacctagagcattccgtctctcatcct
E H
ctgccatgtagcaaactgctatgcatccttcagctgcaagggattgaatgctatcaacaa
ccatacaagtggagaagcagatgcttccctagctgagcctcaggctttttgatggaattg
ctacaacttggtgcatgcctgctcctaaaagaaatactcaggaattgtctcataaagtcc
tcacctactggcaaaaacaagatgttctactcccaggttgacttttcaagccccaagat
gttgagtcagccattctccaaggatctcgatttccttttaatggaaaataacattaaaca
ccaaatataagcctcgctgtcccacatgcgtattggggacaagatgaaacctgcttccag
gctactttggcagcagaactgaaaaaggctttttttccagatatatgatttctcatcgac
agggttgcacagccctctttattgttcgtgtaaatgacacccttggatctgaacaataca
caccaggacaattgtgtgcaacagttctacaaactgatatttctaatta

Figure 20 (continued)

IVB exons: 5, 6, 13, 17, 18, 19 SEQ ID NOS: 26 and 27

gtctaggactcagaaatatagatgttagtaagagcaaacagacataacagataacacatac
aaagtgcctaccacatgctaaccactgctgcaggcactttctatagaagaactaatttaa
tcatcaccataaccctatggggtagatgatatttttacaacctccatttacagatgaag
M K
aaactgaagcatagacctgcttatgtgagaagaaacgcagggagacagttcagtcactgc
K L K H R P A Y V R R N A G R Q F S H C
aatcttcatgcccatcagtttcttgtgagaagaaaacaagactggcaacgcctgcttcct
N L H A H Q F L V R R K Q D W Q R L L P
cctctgagctgtcaagtaggaagtccgggctgctctgctagaaagagaagtcatgtgcag
P L S C Q V G S P G C S A R K R S H V Q
gagcactgaggcatcccaggtgtgacactcttccacctagagcattccgtctctcatcct
E H
ctgccatgtagcaaactgctatgcatccttcagctgcaagggattgaatgctatcaacaa
ccatacaagtggagaagcagatgcttccctagctgagcctcagctctgttttcctcagtc
ctaggggcagattctaatttggtacagaaaaaaaaagtactcctgccaattcccatcctg
gaatgactgaagaaaagaaaatgcatgtgattatttaaaggctttttgatggaattgct
acaacttggtgcatgcctgctcctaaaagaaatactcaggaattgtctcataaagtcctc
acctactggcaaaaacaagatgttctactcccaggttgacttttcaagccccaagatgt
tgagtcagccattctccaaggatctcgatttccttttaatggaaaataacattaaacacc
aaatataagcctcgctgtcccacatgcgtattggggacaagatgaaacctgcttccaggc
tactttggcagcagaactgaaaaaggctttttttccagatatatgatttctcatcgacag
ggttgcacagccctctttattgttcgtgtaaatgacacccttggatctgaacaatacaca
ccaggacaattgtgtgcaacagttctacaaactgatatttctaatta

V exons 5, 6, 17, 19 GB AY 312369 SEQ ID NOS: 28 and 29

tctaggactcagaaatatagatgttagtaagagcaaacagacataacagataacacatac
aaagtgcctaccacatgctaaccactgctgcaggcactttctatagaagaactaatttaa
tcatcaccataaccctatggggtagatgatatttttacaacctccatttacagatgaag
M K
aaactgaagcatagacctgcttatgtgagaagaaacgcagggagacagttcagtcactgc
K L K H R P A Y V R R N A G R Q F S H C
aatcttcatgcccatcagtttcttgtgagaagaaaacaaagcaaactgctatgcatcctt
N L H A H Q F L V R R K Q S K L L C I L
cagctgcaagggattgaatgctatcaacaaccatacaagtggagaagcagatgcttccct
Q L Q G I E C Y Q Q P Y K W R S R C F P
agctgagcctcaggcttttgatggaattgctacaacttggtgcatgcctgctcctaaaa
S
gaaatactcaggaattgtctcataaagtcctcacctactggcaaaaacaagatgttctac
tcccaggttgacttttcaagccccaagatgttgagtcagccattctccaaggatctcga
tttccttttaatggaaaataacattaaacaccaaatataagcctcgctgtcccacatgcg
tattggggacaagatgaaacctgcttccaggctactttggcagcagaactgaaaaaggct
ttttttccagatatatgatttctcatcgacagggttgcacagccctctttattgttcgtg
taaatgacacccttggatctgaacaatacacaccaggacaattgtgtgcaacagttctac
aaactgatatttctaatta

Figure 20 (continued)

IB: exons 2, 3, 6, 7, 9 **GB AY312365 SEQ ID NOS: 18 and 19**

```
gacacagagaagaccactcccacctccccgagtgcaaggtgtgaagggacagatctttta
accatgcctgccccttatacttgctgttcatagaattgcaactgaaagtgaccatgagg
atccactggatggagttacttctttcttaagtgaggaggctaagatctgagttcttcaca
tctctctgtagataaaatttccggtctggtttcacattcctctgtcagaagaactttctt
taatgtttcttaaagtacaggtctgctgcttatgtgagaagaaacgcagggagacagttc
    C  F  L  K  Y  R  S  A  A  Y  V  R  R  N  A  G  R  Q  F
agtcactgcaatcttcatgcccatcagtttcttgtgagaagaaaacaagagctccaatct
 S  H  C  N  L  H  A  H  Q  F  L  V  R  R  K  Q  E  L  Q  S
gttagatggtattttgaagcaggtctttgggtaaaggacacctagacccagtgaaggtca
 V  R  W  Y  F  E  A  G  L  W  V  K  D  T
tggtgattattattggacaatgggacatcactctgctattaagtgagaaaatgagacagg
ttgcactgagggctgttagccagacagagtctcgaactggaagtccatctagatgttttg
cataagagaatggaaacaatctgtctgtgatttagggacatactctggcagcaatatggg
aatacagtttcaatcctcattaacaaaacaggtatgaaatacatatttatttagtaaggt
gccagctgtatgaaaaatccatttcttatttcccataatgtttctgaaatgtcttagcag
tgcatagagacagcatgtcatcattttctagggactgtgtgttattgcatttttcctagg
gaagatcttttctaggtcacctgctccttcgctaaagctctgaccaatctagcttgctaa
cctgtgactccatttttcctaagtcctgagagagaaaaacgctttgcagcaaattatgcca
ggcatccttgtgtctaaatgaaaaaaggaaaaagcctccttccttccctctgttgagaag
tgcacggtccacatatgcatgcacagcatatactgtgagggtatttgcagtcccttgggt
tgctttgataactggccaggttgctgttctatttttccacattctattaatcctcctaca
ggcagttattaggtattgagtgctcacacacccctggcatagtcaccacatgccattagc
 tccagataaacttccagaaaaaagtccatcccccacttctctcagctgcctgccaacgct
ggacaccttctcaccaagccagcaggacagagaaaagcctgggctttaagatcaaacaaa
cacagcttcaaattaggactctgtcacttcctgtgtactgggcactttgctgagtatgtg
gtttctcatctgtaaaacagagaaagatgattatctcccaatctttctatgttatatgtt
tgaattaaataaggtactctccatgaa
```

II exons 1, 4, 6, 12 **GB AY312366 SEQ ID NOS: 20 and 21**

```
gctgatggtggaaggagaatgagtctctgatgcctttggacttgatgctggaaagacttaa
 gactttgggggactactggaaaggagtgacttctccccagattttgtatacctgactct
 gtttcagcatccgcttcccaaagaatgcagtgtgaagcaggagcttatgtgagaagaaac
                          M  Q  C  E  A  G  A  Y  V  R  R  N
 gcagggagacagttcagtcactgcaatcttcatgcccatcagtttcttgtgagaagaaaa
  A  G  R  Q  F  S  H  C  N  L  H  A  H  Q  F  L  V  R  R  K
 caagtggatatacactgttccaagcagcatgtgttgaaaagatttgtcttttccccattt
  Q  V  D  I  H  C  S  K  Q  H  V  L  K  R  F  V  F  S  P  F
 aatggtcttggtacctttctcaaaaattgaccatatatga
  N  G  L  G  T  F  L  K  N
```

Figure 20 (continued)

VI exons 1, 6, 13, 17, 19 GB AY 312370 SEQ ID NOS: 30 and 31

```
gctgatggtggaaggagaatgagtctctgatgcctttggacttgatgctggaaagacttaag
                              M  P  L  D  L  M  L  E  R  L  K
 actttgggggactactggaaagcttatgtgagaagaaacgcagggagacagttcagtcac
  T  L  G  D  Y  W  K  A  Y  V  R  R  N  A  G  R  Q  F  S  H
 tgcaatcttcatgcccatcagtttcttgtgagaagaaaacaagactggcaacgcctgctt
  C  N  L  H  A  H  Q  F  L  V  R  R  K  Q  D  W  Q  R  L  L
 cctcctctgagctgtcaagtaggaagtccgggctgctctgctagaaagagaagtcatgtg
  P  P  L  S  C  Q  V  G  S  P  G  C  S  A  R  K  R  S  H  V
 caggagcactgaggcatcccaggtgtgacactcttccacctagagcattccgtctctcat
  Q  E  H
 cctctgccatgtagcaaactgctatgcatccttcagctgcaagggattgaatgctatcaa
 caaccatacaagtggagaagcagatgcttccctagctgagcctcaggctttttgatggaa
 ttgctacaacttggtgcatgcctgctcctaaaagaaatactcaggaattgtctcataaag
 tcctcacctactggcaaaaacaagatgttctactcccaggttgacttttttcaagccccaa
 gatgttgagtcagccattctccaaggatctcgatttccttttaatggaaaataacattaa
 acaccaaatataagcctcgctgtcccacatgcgtattggggacaagatgaaacctgcttc
 caggctactttggcagcagaactgaaaaaggctttttttccagatatatgatttctcatc
 gacagggttgcacagccctctttattgttcgtgtaaatgacacccttggatctgaacaat
 acacaccaggacaattgtgtgcaacagttctacaaactgatatttctaatta
```

VII exons 5, 6, 13, 14 GB AY 312371 SEQ ID NOS: 32 and 33

```
tctaggactcagaaatatagatgttagtaagagcaaacagacataacagataacacatac
aaagtgcctaccacatgctaaccactgctgcaggcactttctatagaagaactaatttaa
tcatcaccataaccctatggggtagatgatatttttacaacctccattttacagatgaag
                                                      M  K
aaactgaagcatagacctgcttatgtgagaagaaacgcagggagacagttcagtcactgc
 K  L  K  H  R  P  A  Y  V  R  R  N  A  G  R  Q  F  S  H  C
aatcttcatgcccatcagtttcttgtgagaagaaaacaagactggcaacgcctgcttcct
 N  L  H  A  H  Q  F  L  V  R  R  K  Q  D  W  Q  R  L  L  P
cctctgagctgtcaagtaggaagtccgggctgctctgctagaaagagaagtcatgtgcag
 P  L  S  C  Q  V  G  S  P  G  C  S  A  R  K  R  S  H  V  Q
gagcactgaggcatcccaggtgtgacactcttccacctagagcattccgtctctcatcct
 E  H
ctgccatgtgccatgttttgaaccactagattagagggtcaagcaatttcttggaatttt
actctgaattctacgtagaccattttcatgtgtatacctcctctgagtcaccctcaggta
gggacatttt
```

Figure 20 (continued)

VIII exons 5,6,12 GB AY 312372 SEQ ID NOS: 34 and 35

```
tctaggactcagaaatatagatgttagtaagagcaaacagacataacagataacacatac
aaagtgcctaccacatgctaaccactgctgcaggcactttctatagaagaactaatttaa
tcatcaccataaccctatggggtagatgatatttttacaacctccattttacagatgaag
                                                          M  K
aaactgaagcatagacctgcttatgtgagaagaaacgcagggagacagttcagtcactgc
 K  L  K  H  R  P  A  Y  V  R  R  N  A  G  R  Q  F  S  H  C
aatcttcatgcccatcagtttcttgtgagaagaaaacaagtggatatacactgttccaag
 N  L  H  A  H  Q  F  L  V  R  R  K  Q  V  D  I  H  C  S  K
cagcatgtgttgaaaagatttgtcttttccccatttaatggtcttggtacctttctcaaa
 Q  H  V  L  K  R  F  V  F  S  P  F  N  G  L  G  T  F  L  K
aattgaccatatatga
 N
```

IX exons 1, 4, 6, 11 GB AY 312373 SEQ ID NOS: 36 and 37

```
gctgatggtggaaggagaatgagtctctgatgcctttggacttgatgctggaaagacttaa
gactttgggggactactggaaaggagtgacttctccccagatttttgtatacctgactct
gtttcagcatccgcttcccaaagaatgcagtgtgaagcaggagcttatgtgagaagaaac
                          M  Q  C  E  A  G  A  Y  V  R  R  N
gcagggagacagttcagtcactgcaatcttcatgcccatcagtttcttgtgagaagaaaa
 A  G  R  Q  F  S  H  C  N  L  H  A  H  Q  F  L  V  R  R  K
caagtttaggaaaacttcctacaccttctttgttgggatgttctctggactaatgactcc
 Q  V
aggcgagaccaccgttgatcatgaactcactttgaaacagaagctgggttggtaagactg
gagctact
```

X exons 4, 6, 10b GB AY 321515 SEQ ID NOS: 38 and 39

```
gagtgacttctccccagattttgtatacctgactctgtttcagcatccgcttcccaaaga
atgcagtgtgaagcaggagcttatgtgagaagaaacgcagggagacagttcagtcactgc
 M  Q  C  E  A  G  A  Y  V  R  R  N  A  G  R  Q  F  S  H  C
aatcttcatgcccatcagtttcttgtgagaagaaaacaagaaaacaaggactgaaatcca
 N  L  H  A  H  Q  F  L  V  R  R  K  Q  E  N  K  D
cacaggaaggtggcagtgaactccacagacggacctggacgcctcaacactcctggcctt
acctcccttgctgaacgtctcaagtttctctgcgttcaggtaatgtataggagggttatg
agggcagagaattcctaagctcattagtaaattgctcttcagaaaagtgctttgaagcaa
agctaatttccttttcccaatatgagaagatttggccctaccagaaaaaggaaatgatttg
aatgtgcgccaaaaaatatgttttctttctttttctttgttgaacactcatcgggagttac
tcttattagttccgcatttttattgccattt
```

Figure 20 (continued)

XI exons 4, 6, 13, 17, 19 **GB AY 321516 SEQ ID NOS: 40 and 41**

gagtgacttctccccagatttttgtatacctgactctgtttcagcatccgcttcccaaaga
atgcagtgtgaagcaggagcttatgtgagaagaaacgcagggagacagttcagtcactgc
M Q C E A G A Y V R R N A G R Q F S H C
aatcttcatgcccatcagtttcttgtgagaagaaaacaagactggcaacgcctgcttcct
N L H A H Q F L V R R K Q D W Q R L L P
cctctgagctgtcaagtaggaagtccgggctgctctgctagaaagagaagtcatgtgcag
P L S C Q V G S P G C S A R K R S H V Q
gagcac**tga**ggcatcccaggtgtgacactcttccacctagagcattccgtctctcatcct
E H
ctgccatgtagcaaactgctatgcatccttcagctgcaagggattgaatgctatcaacaa
ccatacaagtggagaagcagatgcttccctagctgagcctcaggctttttgatggaattg
ctacaacttggtgcatgcctgctcctaaaagaaatactcaggaattgtctcataaagtcc
tcacctactggcaaaaacaagatgttctactcccaggttgacttttcaagccccaagat
gttgagtcagccattctccaaggatctcgatttccttttaatggaaaataacattaaaca
ccaaatataagcctcgctgtcccacatgcgtattggggacaagatgaaacctgcttccag
gctactttggcagcagaactgaaaaaggctttttttccagatatatgatttctcatcgac
agggttgcacagccctctttattgttcgtgtaaatgacaccttggatctgaacaataca
caccaggacaattgtgtgcaacagttctacaaactgatatttctaatta

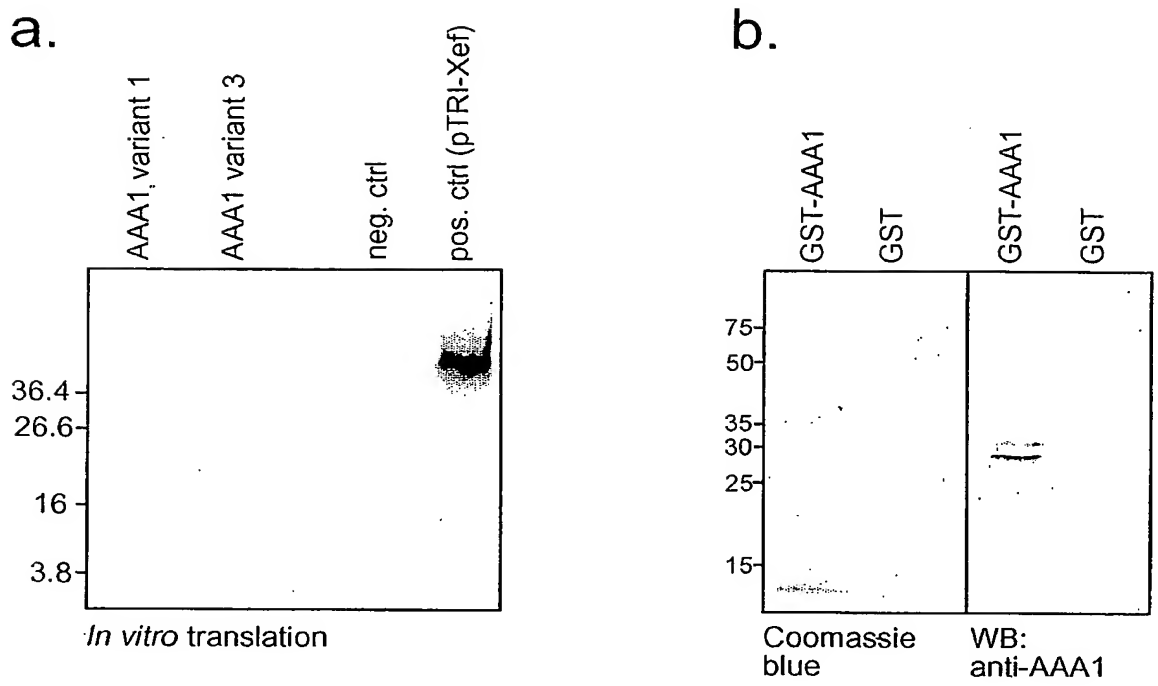

Fig. 21A and 21B